

## Improvements to the Regional Deterministic Operational Air Quality Analysis System for Surface Pollutants including AQHI at the Canadian Meteorological Center

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In February 2013, in collaboration with the Air Quality Research Division, the Canadian Meteorological Centre (CMC) implemented into its daily operations a new regional deterministic air quality analysis (RDAQA) for surface ozone and PM<sub>2.5</sub>. In 2015, RDAQA has been upgraded by including new pollutants: nitrogen dioxide (NO<sub>2</sub>), coarse particulate matter (PM<sub>10</sub>), sulfate dioxide (SO<sub>2</sub>) and air quality health index (AQHI).

The RDAQA System is connected to two slightly different configuration of the same model (operational GEM-MACH and FireWork-GEM-MACH respectively). The two RDAQA analyses are produced hourly using the two model configuration (trial fields), surface observations (from provincial and municipal data providers in Canada and the US EPA/AIRNow Program for US). The solver which combines in an optimal way GEM-MACH model and surface observations is an adapted version based on the classical optimal interpolation approach with a semi-empirical bias correction algorithm.

The RDAQA evaluation statistics, monitoring results and geographical mapping of the AQHI will be presented together with information about the end products that are available on an internal Environment Canada website used daily by operational air quality forecasters.